



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,311	09/30/2003	Frank G. Gates	42P16521	8182

8791 7590 04/04/2007
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

RAMPURIA, SATISH

ART UNIT	PAPER NUMBER
----------	--------------

2191

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/676,311

Applicant(s)

GATES ET AL.

Examiner

Satish S. Rampuria

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10,16-26,28-41,43-47,49,50 and 53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10,16-26,28-41,43-47,49,50 and 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

1. This action is in response to the amendment filed on 02/15/2007.
2. The objection to specification due to use of trademarks is withdrawn in view of applicant's amendment.
3. Claims cancelled by the applicant: 2, 11-15, 27, 42, 48 and 51-52
4. Claims amended by the applicant: 1, 3-5, 16, 18, 21, 28, 30, 35, 37, 41, 43, 46, 47, 50, 53.
5. Claims 1, 3-10, 16-26, 28-41, 43-47, 49-50, and 53 are pending.

Response to Arguments

6. Applicant's arguments with respect to claims have been considered but they are not persuasive.

In the remarks, the applicant has argued that:

The Office Action argues that because claim 32 recites an apparatus without reciting a processor or memory, it is claiming "software per se" that is not tangibly embodied and amounts only to an abstract idea. However, nothing requires that a claim recite a tangible physical article or machine to be patentable subject matter. While the Interim Guidelines limit the patentability of "computer programs claimed as computer listings per se" (Interim Guidelines p. 53, emphasis in original), that rule is rather limited. By its own terms, it applies only to computer programs claimed as computer listings per se. Clearly, computer listings per se by their very nature cannot produce a useful, concrete, or tangible result. Therefore, if a claimed element produces a useful, concrete and tangible result, it is not a computer listing per se.

Claim 32 does not claim computer listings per se. Claim 32 recites elements that ultimately produce faster executing machine code. Thus, the claimed elements are capable of producing a useful, concrete and tangible result. They are not mere "computer listings per se."

The focus should not be on whether claim 32 recites specific hardware. Rather, the determinative issue is whether the recited elements produce a practical result - which they do. "Thus, the question of whether a claim encompasses statutory subject matter should not focus on which category of subject matter a claim is directed (e.g., process or machine), but rather on the essential characteristics of the subject matter, in particular its practical utility." Interim Guidelines, p. 37, quoting the State Street decision cited above.

Examiner's response:

In response to Applicants argument that claims 32-40 are statutory since claims recites elements that ultimately produce faster executing machine code. Thus, the claimed elements are

Art Unit: 2191

capable of producing a useful, concrete and tangible result. Claim 32-40 are apparatus claims of functional descriptive material, however, the recited components of the claims can reasonably be interpreted as computer program modules/software per se. There are no indications or suggestions in the specification or claims that would associate the recited software components in the claims with hardware elements of the electronic device (Applicant's Specification paragraph [0016]-[0017]. The components, a front end code generator, the profiler, a back end code generator are descriptions or expressions of the programs are not physical "things". They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized. Therefore the rejection is proper and maintained herein.

In the remarks, the applicant has argued that:

The Office rejects claims 41-49 because they recite a machine accessible medium and because a "machine readable medium" is defined at paragraph [0014] of the specification to include "intangible media." (Office Action, p. 3). The rejection of claims 42 and 48 is moot because they have been canceled.

As for the remaining claims, 41, 43-47, and 49, Applicant has amended independent claim 41 to recite a "computer readable medium" instead of a "machine accessible medium." A computer readable medium is recognized as patentable subject matter. Dependent claims 43-47, and 49 are deemed to recite the same limitation. The rejections are thus obviated. Applicant respectfully requests that the rejection of claims 41, 43-47, and 49 be withdrawn.

Examiner's response:

In response to applicants argument that the claims 41, 43-47, 49, 53 are amended to "computer readable medium". However, the claims are still rejected under 35 U.S.C. 101. The specification describes the computer program product as to include acoustic or other form of propagated signals (e.g., carrier waves, infrared signal, digital signals) (Applicant's

Art Unit: 2191

specification paragraph [0014])). Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism per se, and as such are nonstatutory natural phenomena. *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853). Therefore, a claim reciting a signal encoded with functional descriptive material does not fall within any of the categories of patentable subject matter set forth in § 101.

In the remarks, the applicant has argued that:

The generated performance data recited in claim 1 indicates the performance of executed intermediate code - not binary executable code. Machine code is then produced based on the performance data and the intermediate code. In contrast, Goebel describes processing profile information generated during the execution of binary executable code. For example, at col. 6, lines 61-66, Goebel states that, "The intermediate representation optimizer segment 305 of the re-optimizing compiler 300 can also process profile information 317 generated during execution of an instrumented binary executable to determine which portions of the binary executable most need to be optimized" (emphasis added). This portion of Goebel describes using profile information generated during the execution of a binary executable. It does not describe producing machine code from performance data that indicates the performance of executed intermediate code, as recited by claim 1. Applicants are unaware of any portion of Goebel that describes the above limitations of claim 1.

Examiner's response:

In response to the applicants argument, Goebel is capable of re-optimizing a binary executable. Re-optimizing compiler process source information by a compiler front-end segment that generates an **intermediate** representation of the source information. This **intermediate** representation is optimized by an **intermediate** representation optimizer segment that performs optimizations on the **intermediate** representation. The optimized **intermediate** representation is then processed by a code generator segment that generates a binary module containing opcodes. A linker application converts the binary module into a binary executable. The **intermediate** representation optimizer segment and the code generator segment also propagate portions of their internally collected symbol and alias information as annotations to the

Art Unit: 2191

resulting binary module (and corresponding binary executable). This annotation information is used by a binary re-optimization process (subsequently described with respect to FIG. 4) to approximate the compiler's internal state during the compilation of the source code used to create the binary executable (col. 6, lines 22-43). Goebel does disclose the cited limitations. Therefore, the rejection is proper and maintained herein.

Applicant's arguments with respect to claim 21-26, 28-31, 46, 47 and 49 have been considered but are moot in view of the new ground(s) of rejection.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 32-40 and 41, 43-47, 49, 53 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 32-33 and 35-38 are directed to apparatus of functional descriptive material per se, and hence non-statutory. The recited components of the claims can reasonably be interpreted as computer program modules—software per se. Also, the specification discloses that many of the features and techniques may be implemented in software (Applicant's Specification - Paragraph [0017]). Therefore, the claims constitute computer programs representing computer listings per se. Such descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable storage device encoded with a computer program is a computer element, which defines structural and functional interrelationships between the computer program and the rest of the computer, that permits the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 41, 43-47, 49, 53 recite "computer readable medium" as claimed element. However, it is noted that the specification describes the computer program product as to include acoustic or other form of propagated signals (e.g., carrier waves, infrared signal, digital signals)

Art Unit: 2191

(Applicant's specification paragraph [0014]). Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism per se, and as such are nonstatutory natural phenomena. *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853). Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 3-10, 16-20, 32-46 and 50, 53 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,289,505 to Goebel (hereinafter, Goebel).

Per claim 1:

Goebel discloses:

Art Unit: 2191

- A method comprising:
- receiving source code (See FIG. 3, element 301 and related discussion);
- transforming the source code to intermediate code (FIG. 3, element 305 and related discussion);
- executing the intermediate code (See FIG. 3, element 303 and 305 and related discussion);
- generating data that indicates performance of the executed intermediate code (See FIG. 3, element 307 and related discussion); and
- producing machine code based on the data and intermediate code (See FIG. 3, elements 305-309 and FIG. 4, element 411 and related discussion).

Per claim 3:

The rejection of claim 2 is incorporated and further, Goebel discloses:

- wherein executing the intermediate code comprises simulating execution of the intermediate code (See FIG. 4, element 409 and related discussion).

Per claim 4:

The rejection of claim 2 is incorporated and further, Goebel discloses:

Art Unit: 2191

- wherein generating the data regarding the performance of the executed intermediate code comprises generating a performance profile (See FIG. 4, element 407 and related discussion).

Per claim 5:

The rejection of claim 4 is incorporated and further, Goebel discloses:

- wherein generating the data regarding the performance of the executed intermediate code further comprises annotating the intermediate code based, at least in part, on performance profile data (See FIG. 3, elements 305-309 and FIG. 4, element 411 and related discussion and col. 6, lines 45-67 “process profile information... generated during execution...” and col. 7, lines 3-52 “...processes...annotation information... was generated during the compilation...”).

Per claim 6:

The rejection of claim 5 is incorporated and further, Goebel discloses:

- wherein annotating the intermediate code comprises concatenating data structures that include the performance profile data to intermediate code to embed the performance profile data into the intermediate code (See FIG. 3, elements 315, 317 and related discussion).

Per claim 7:

The rejection of claim 5 is incorporated and further, Goebel discloses:

Art Unit: 2191

- wherein annotating the intermediate code comprises: generating a file that includes the performance profile data; and mapping the performance profile data to corresponding portions of intermediate code (col. 6, lines 45-67 “process profile information... generated during execution...” and col. 7, lines 3-52 “...processes...annotation information... was generated during the compilation... ”).

Per claim 8:

The rejection of claim 5 is incorporated and further, Goebel discloses:

- wherein producing machine code based on the data and intermediate code (See FIG. 3, elements 305-309 and FIG. 4, element 411 and related discussion) includes providing the annotated intermediate code to a compiler, wherein the compiler produces the machine code based on annotated intermediate code (See FIG. 3, elements 305-309 and FIG. 4, element 411 and related discussion and col. 6, lines 45-67 “process profile information... generated during execution...” and col. 7, lines 3-52 “...processes...annotation information... was generated during the compilation... ”).

Per claim 9:

The rejection of claim 5 is incorporated and further, Goebel discloses:

- wherein the performance profile data comprises one or more of branch statistics, loop statistics and function invocation statistics (col. 7, lines 10-16“...optimization include...techniques for interprocedural optimization and local, loop, and global

Art Unit: 2191

scheduling...”).

Per claim 10:

The rejection of claim 8 is incorporated and further, Goebel discloses:

- wherein the machine code executes faster than the intermediate code (See FIG. 3, elements 315, 317 and related discussion).

Per claim 16:

The rejection of claim 1 is incorporated and further, Goebel discloses:

- receiving external execution input (See FIG. 3, element 313 and related discussion); and
- using the external execution input to execute the intermediate code (See FIG. 3, element 305 and related discussion).

Per claim 17:

The rejection of claim 1 is incorporated and further, Goebel discloses:

- wherein the data comprises one or more of plain-text format, binary representations, database maps, and character delimited proprietary format (col. 8 to col. 9, lines 65-67 and 1-3 “...save data set specific binary executable...optimized binary executable on the data set to achieve the optimized performance with respect to that data set...”).

Per claims 18 and 20:

Goebel discloses:

Art Unit: 2191

- A method comprising: transforming source code into intermediate code (See FIG. 3, element 315 and related discussion);
- providing the intermediate code to a profiler that executes the intermediate code and generates annotated intermediate code based on the performance of the executed intermediate code (col. 6, lines 45-67 “process profile information... generated during execution...” and col. 7, lines 3-52 “...processes...annotation information... was generated during the compilation...” and See FIG. 4, element 407 and related discussion);
- receiving from the profiler the annotated intermediate code (See FIG. 3, element 305 and related discussion); and
- transforming the annotated intermediate code into machine code (See FIG. 4, element 411 and related discussion).

Per claim 19:

The rejection of claim 18 is incorporated and further, Goebel discloses:

- wherein the annotated intermediate code is annotated to include one or more of branch statistics, loop statistics and function invocation statistics (col. 7, lines 3-52 “...optimization include...techniques for interprocedural optimization and local, loop, and global scheduling...”).

Art Unit: 2191

Claims 32-34 are the apparatus claim corresponding to method claims 1, 19-20 respectively, and rejected under the same rational set forth in connection with the rejection of claims 1, 19-20 respectively, above.

Claims 35-40 are the apparatus claim corresponding to method claims 1, 16, 5, 19, 20 and 24 respectively, and rejected under the same rational set forth in connection with the rejection of claims 1, 16, 5, 19, 20 and 24 respectively, above.

Claims 41, 43-45 are the article of manufacture claim corresponding to method claims 1, 2, 5, 14, and 8 respectively, and rejected under the same rational set forth in connection with the rejection of claims 1, 2, 5, 14, and 8 respectively, above.

Claims 50, 53 are the system claim corresponding to method claims 1, and 16 respectively, and rejected under the same rational set forth in connection with the rejection of claims 1 and 16 respectively, above.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 21, 22, 25, 26, 28-31, 46, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goebel in view of US Patent No. 6,874,410 to Shupak (hereinafter, Shupak).

Art Unit: 2191

Per claim 21:

Goebel discloses:

- A method comprising:
 - producing machine code based upon source code (See FIG. 1 and related discussion);
 - receiving a data file generated by a profiler (See FIG. 3 element 317 and related discussion), wherein the data file indicates a performance of the machine code as executed by the profiler (See FIG. 3, element 307 and related discussion); and
 - producing machine code based on the source code and the data file; (See FIG. 3, elements 305-309 and related discussion) and ;
 - receiving another data file from the profiler; and producing further modified machine code based upon the source code and the another data file (col. 6, lines 45-67 “process profile information... generated during execution...” and col. 7, lines 10-16 “...processes...annotation information... was generated during the compilation...”).

Goebel does not explicitly disclose iteratively: determining whether to produce further modified machine code; and, if further modified machine code is to be produced: providing the modified machine code to the profiler.

However, Shupak discloses in an analogous computer system iteratively: determining whether to produce further modified machine code; and, if further modified machine code is to be produced: providing the modified machine code to the profiler (See FIG. 7 and related discussion col. 10, lines 61-67 “Method 700 includes receiving or reading an annotation debug information in an executable computer program 710...the annotation debug information was generated from an annotation function

Art Unit: 2191

call in the source code that the executable computer program was compiled from...the annotation debug information includes information”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of iteratively: determining whether to produce further modified machine code; and, if further modified machine code is to be produced: providing the modified machine code to the profiler as taught by Shupak into the method of generating the optimized executable code as taught by Goebel. The modification would be obvious because of one of ordinary skill in the art would be motivated modify the modified code if it is need to be modified to avoid the overhead execution time as suggested by Shupak (col. 3, lines 25-40).

Per claim 22:

The rejection of claim 21 is incorporated and further, Goebel discloses:

- providing the machine code to the profiler (See FIG. 4 and related discussion).

Per claim 25:

The rejection of claim 21 is incorporated and further, Goebel discloses:

- wherein the data file includes one or more of branch statistics, loop statistics and function invocation statistics (col. 7, lines 10-16 “...optimization include...techniques for interprocedural optimization and local, loop, and global scheduling...”).

Per claim 26:

Art Unit: 2191

The rejection of claim 21 is incorporated and further, Goebel discloses:

- wherein the data file includes an identifier that associates an executed instruction with generated data (col. 8 to col. 9, lines 65-67 and 1-3 "...save data set specific binary executable...optimized binary executable on the data set to achieve the optimized performance with respect to that data set...").

Per claim 28:

The rejection of claim 21 is incorporated and further, Goebel does not explicitly disclose wherein determining whether to produces further modified machine code comprises determining whether a predetermined performance gain has been achieved.

However, Shupak discloses in an analogous computer system wherein determining whether to produces further modified machine code comprises determining whether a predetermined performance gain has been achieved (See FIG. 7 and related discussion col. 10, lines 61-67 "Method 700 includes receiving or reading an annotation debug information in an executable computer program 710...the annotation debug information was generated from an annotation function call in the source code that the executable computer program was compiled from...the annotation debug information includes information").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of wherein determining whether to produces further modified machine code comprises determining whether a predetermined performance gain has been achieved as taught by Shupak into the method of generating the optimized executable code as taught by Goebel. The modification would be obvious because of one of ordinary skill in the art would be motivated to produce the modified code

if it is need to be modified to avoid the overhead execution time as suggested by Shupak (col. 3, lines 25-40).

The feature of wherein determining whether to produces further modified machine code comprises determining whether a predetermined performance gain has been achieved would be obvious for the reasons set forth in the rejection of claim 21.

Per claim 29:

The rejection of claim 28 is incorporated and further, Goebel does not explicitly disclose wherein determining whether the predetermined performance gain has been achieved comprises determining whether the modified machine code executes faster than the machine code.

However, Shupak discloses in an analogous computer system wherein determining whether the predetermined performance gain has been achieved comprises determining whether the modified machine code executes faster than the machine code (See FIG. 7 and related discussion col. 10, lines 61-67 “Method 700 includes receiving or reading an annotation debug information in an executable computer program 710...the annotation debug information was generated from an annotation function call in the source code that the executable computer program was compiled from...the annotation debug information includes information”).

The feature of wherein determining whether the predetermined performance gain has been achieved comprises determining whether the modified machine code executes faster than the machine code would be obvious for the reasons set forth in the rejection of claim 21.

Per claim 30:

The rejection of claim 28 is incorporated and further, Goebel does not explicitly disclose wherein determining whether to produces further modified machine code comprises determining whether a cost of modifying the modified machine code exceeds a performance gain to be achieved by the modifying.

However, Shupak discloses in an analogous computer system wherein determining whether to produces further modified machine code comprises determining whether a cost of modifying the modified machine code exceeds a performance gain to be achieved by the modifying (See FIG. 7 and related discussion col. 10, lines 61-67 “Method 700 includes receiving or reading an annotation debug information in an executable computer program 710...the annotation debug information was generated from an annotation function call in the source code that the executable computer program was compiled from...the annotation debug information includes information”).

The feature of wherein determining whether to produces further modified machine code comprises determining whether a cost of modifying the modified machine code exceeds a performance gain to be achieved by the modifying would be obvious for the reasons set forth in the rejection of claim 21.

Per claim 31:

The rejection of claim 21 is incorporated and further, Goebel does not explicitly disclose wherein receiving the data file comprises receiving the data file via one of a data storage device, an alphanumeric input device, a network interface, a shared data storage location, and a direct real-time connection.

However, Shupak discloses in an analogous computer system wherein receiving the data file comprises receiving the data file via one of a data storage device, an alphanumeric input

Art Unit: 2191

device, a network interface, a shared data storage location, and a direct real-time connection (See FIG. 7 and related discussion col. 10, lines 61-67 “Method 700 includes receiving or reading an annotation debug information in an executable computer program 710...the annotation debug information was generated from an annotation function call in the source code that the executable computer program was compiled from...the annotation debug information includes information”).

The feature of wherein receiving the data file comprises receiving the data file via one of a data storage device, an alphanumeric input device, a network interface, a shared data storage location, and a direct real-time connection would be obvious for the reasons set forth in the rejection of claim 21.

Claims 46, 47, 49 are the article of manufacture claim corresponding to method claims 21, 29, 31 respectively, and rejected under the same rationale set forth in connection with the rejection of claims 21, 29 and 31 respectively, above.

14. Claims 23 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Goebel in view of Shupak and further in view of Applicant's Admitted Prior Art (hereinafter, AAPA).

Per claim 23:

The rejection of claim 22 is incorporated and further, Goebel does not explicitly disclose wherein providing the machine code to the profiler comprises providing the machine code to a virtual machine.

However, AAPA discloses in an analogous computer system wherein providing the machine code to the profiler comprises providing the machine code to a virtual machine

Art Unit: 2191

(Applicant's Specification [0027] "Virtual machine are known in the art, and thus will not be described further...").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of wherein providing the machine code to the profiler comprises providing the machine code to a virtual machine as taught by AAPA into the method of generating the optimized executable code as taught by the combination system of Goebel and Shupak. The modification would be obvious because to of one of ordinary skill in the art providing the machine code to the profiler comprises providing the machine code to a virtual machine would be known as suggested by AAPA (page 11 [0027]).

Per claim 24:

The rejection of claim 22 is incorporated and further, Goebel does not explicitly disclose wherein providing the machine code to the profiler comprises providing the machine code to a probed processor.

However, AAPA discloses in an analogous computer system wherein providing the machine code to the profiler comprises providing the machine code to a probed processor (Applicant's Specification [0028] "Probed hardware is known in the art, and thus will not be described further...").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of wherein providing the machine code to the profiler comprises providing the machine code to a probed processor as taught by

Art Unit: 2191

AAPA into the method of generating the optimized executable code as taught by the combination system of Goebel and Shupak. The modification would be obvious because to of one of ordinary skill in the art providing the machine code to the profiler comprises providing the machine code to a probed processor would be known as suggested by AAPA (page 12 [0028]).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Satish S. Rampuria** whose telephone number is **(571) 272-3732**. The examiner can normally be reached on **8:30 am to 5:00 pm** Monday to Friday except every other Friday and federal holidays. Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: 571-272-2100**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wei Y. Zhen** can be reached on **(571) 272-3708**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Art Unit: 2191

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Satish S. Rampuria
Patent Examiner/Software Engineer
Art Unit 2191



WEI ZHEN
SUPERVISORY PATENT EXAMINER